GrummanWorld

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1985: A Year Of Transition And Growth

At annual shareholders meeting, company reports record backlog of $7 billion

It was pouring outside, but inside Bethpage's Building 4 hangar, nothing could dampen the good news about Grumman's performance: a backlog of $7 billion in orders for Grumman products — the highest in company history.

Grumman Chairman Jack Bierwirth welcomed over 1,000 shareholders to the 56th annual meeting held Thursday, April 17.

During the hour meeting, Bierwirth announced that the board of directors had approved the sale of ISI Systems, Inc. The Grumman Data Systems Division unit was sold to ISI president Charles Johnston for $14 million in cash and $6 million in notes.

Bierwirth also unveiled a plaque dedicating the Grumman Headquarters building to Clint Towl, a company founder and past director emeritus (see related article, page 8).

During his report on Grumman's 1985 performance, Grumman President George Skurla termed 1985 a pivotal year for Grumman.

"1985 was to be a year of renaissance for the Grumman company — and we're well on our way to achieving all of the goals we set for ourselves last year," said Skurla, in his last address to shareholders. Skurla retires this summer after a 42-year career with the company.

Grumman competed for five major new programs in 1985 — the Air Force's Joint Surveillance Target Attack Radar System, the Army's Intermediate Forward Test Equipment, the Navy's Consolidated Automated Support System, the Postal Service's Long Life Vehicle, and the Space Transportation System Operation Contract. It lost only the last.

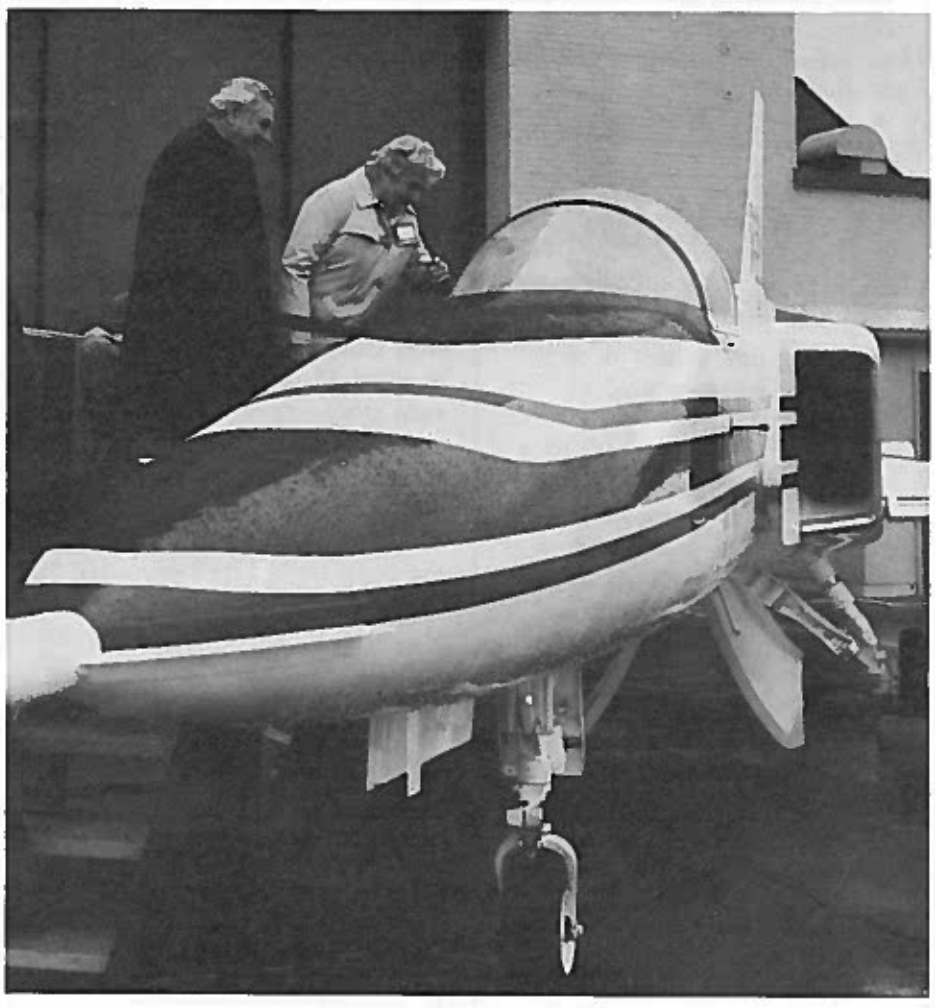
"I think you will all agree that winning four out of five of these key programs is not a bad track record for one year's work," said Skurla, "especially since all of those wins came against some well-established companies, and most are in markets not traditional to us."

Skurla said the contracts resulted from Grumman spending one-half billion dollars on new capital equipment and facilities over the last five years. It also spent over $270 million in research and development.

Grumman is continuing its work on new versions of the F-14 Tomcat and A-6 Intruder — with test flights of the first prototypes set for next

(Continued on page 6)

Thanks For The Memories. *Before delivering his final annual meeting address, President George Skurla is thanked by Chairman Jack Bierwirth at the April 17 shareholders meeting in Building 4. Skurla retires in July after a 42-year career.*



A Model For The Future. *Shareholders endured the downpour to inspect the Grumman X-29 full-scale mock-up at the April 17 annual meeting.*

New Appointments Announced

On April 17, the Grumman board of directors announced a number of appointments.

Aircraft Systems: Dick Anderson, vice president, Technology; Charlie Brown, vice president, Pt. Mugu Operations; Bob Denien, vice president, Integrated Logistics Support; Norm Lewin, vice president and chief engineer; Mike Solomita and Wes Oglesby, assistant treasurers.

Grumman Allied: Bob Steinway, president, Boats Division; Kip Towl, president, LLV Division; Larry Parsons, vice president, LLV Division; Bill McLean, vice president, LLV Division; Tom Byrne, Grumman Olson vice president — Sales, Central Region; Larry Kirkland, Grumman Olson vice president — Sales, Western Region.

Electronics Systems: Harry Beaton, vice president, Display and Trainer Systems; Bob Pearson, vice president, Houston Operations.

Space Systems: Jerry Bostick, vice president, Houston Operations; Kirk Keer, vice president, West Coast Operations; Bob Pirrung, vice president, Resources; Pat Barry, program vice president, BSTS.

Technical Services: Bob Bozza, vice president, Business Operations and controller.

Grumman Houston: Larry McCarty, vice president and treasurer. ■

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Grumman Sells ISI Unit

At the April 17 shareholders meeting, Chairman Jack Bierwirth announced the sale of ISI Systems, Inc. The Grumman Data Systems Division unit was sold to ISI President Charles Johnston for $14 million in cash and $6 million in notes.

Located in Braintree, Massachusetts, ISI provides computer software and services to the insurance industry.

Johnston founded the company and incorporated it as MMI Corporation in 1973. Grumman acquired the firm from Johnston and members of his family in October 1976, changing its name to ISI Systems, Inc.

"ISI has been a very successful venture for us, largely due to Charles Johnston," said Bierwirth. "It has contributed to the continuous growth of our Data Systems Division. Johnston wants to broaden the company at a time when Grumman is fully committed in other directions. We believe that placing ISI back into his hands is in the best interest of the two firms." ■

Army Taps Data Systems For Computer Installation

Data Systems is installing a computer system at the Army Strategic Defense Command's simulation center in Huntsville, Alabama, under a $9 million contract. Work began last month and will continue through September.

"This contract gives us a major inroad into the Strategic Defense Initiative world. It also adds to the base that we are using to penetrate the high-tech marketplace in the Huntsville area," says Southeast Region Vice President Howard Broderson.

The new computer system will be used for scientific and engineering computations in the study of future strategic defense applications and new ballistic missile defense technologies.

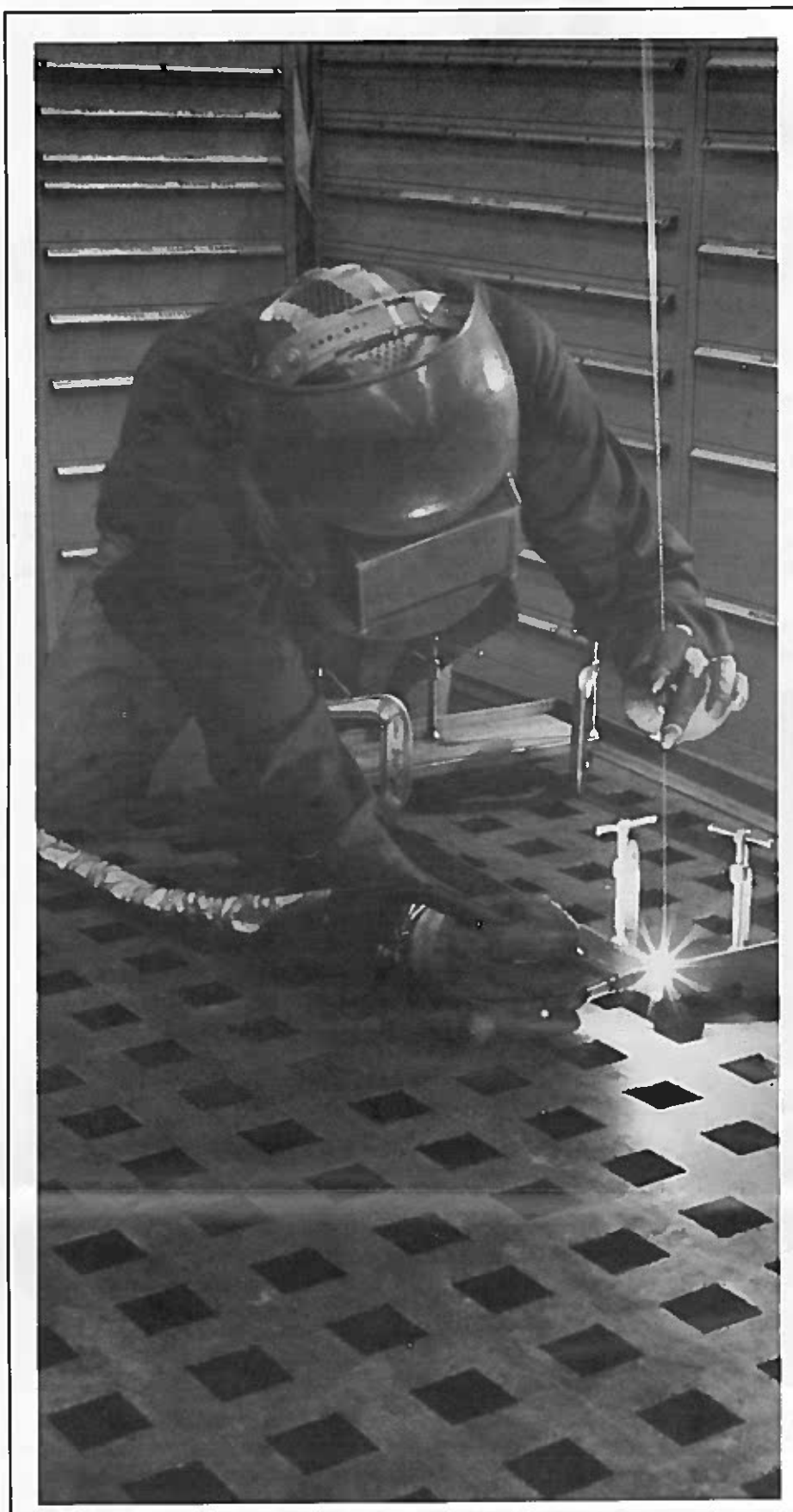
Data Systems designed the system using available hardware and software. It will have three basic components: the front-end processing system with its mainframe computer, large capacity storage, peripherals, and software; a communications system so information can be sent between computers and terminals; and a graphics system with color graphics terminals, plotters, and a graphics workstation. There will also be software to support defense simulation modelling.

If the Army exercises an additional option, Data Systems will install a high-speed, supercomputer-based system as well. Work on this $10 million option would begin in November.

"We are becoming recognized as experts in the application of supercomputers," says Broderson.

Data Systems already has the Engineering Analysis and Data System up and running for NASA at the Marshall Space Flight Center and will soon deliver the first hardware for the Facility Computer Enhancement Program at the Arnold Engineering Development Center in Tullahoma, Tennessee. ■

Pride And Joy. *Grummanite Joe Maura of the Engines Department in Calverton, L.I., is all smiles as he exhibits his 1/350-scale model of the U.S.S. Enterprise. He donated it to Calverton Operations for its lobby. The model is 42 inches long, 17 inches high, and took Maura over 400 hours to build. 'It gives me a lot of personal pride knowing it will be enjoyed by Grummanites for years to come,' says Maura.*



Flying Sparks. *That's Tony Diaz of Static Test, Building 5 in Bethpage, working at his distinctive, grid-like, welder's bench. He's welding an assembly that will eventually house strain gauges. The finished product will be used to test hydraulic lines in E-2C Hawkeyes. (Photo by Bob Settles)*

Unit Values

The Grumman Employee Investment Plan has reported the following unit values as of February 28 (compared to January 31):

Equity Fund
3.513 up from 3.212
Fixed Income Fund
5.216 up from 4.996
Guaranteed Income Fund
2.2 up from 2.182
Company Stock Fund
$24.88 down from $27.19

The EIP unit values are now published once a month in *Grumman World*. However, it usually takes several weeks to formulate these values. EIP members can call Ext. (111) 54400 for a recorded message which is made as soon as the new unit values are available.

Grumman Directors Declare Dividend

On April 17, the directors of Grumman Corporation declared a dividend of 25 cents per share on common stock, payable May 20 to shareholders of record at the close of business on May 9.

The directors also declared a dividend of 70 cents per share on the company's $2.80 preferred stock, payable May 15 to shareholders of record at the close of business on May 5.

Next Edition - Grumman World: May 9th

Ready To Roll.*This Allied-Olson Kurbmaster features an Isuzu chassis. Grumman and Isuzu have teamed to market this walk-in delivery truck in the United States.*

Kurbmaster Goes Turbo

Olson truck body with Isuzu chassis to be marketed in U.S.

Grumman Allied has turbocharged its Kurbmaster marketing effort by joining forces with Isuzu Truck of America.

Under a joint venture agreement, the two companies will produce and sell a Grumman model of this walk-in, aluminum-bodied vehicle used for multi-stop deliveries. The Grumman body will top an Isuzu NPR turbocharged diesel-powered chassis.

Fleet sales of the vehicle will be handled jointly by Isuzu and Grumman Olson, a unit of the Grumman Allied Division. Isuzu's dealer network will be responsible for retail sales of the truck.

"The Isuzu NPR is extremely well suited to our lightweight, durable aluminum body," says Ron Hale, Grumman Olson's vice president of Marketing. "The teaming offers us a great opportunity to sell through Isuzu's dealer network. Some of the Isuzu dealers may opt to sell other Grumman-bodied trucks as well.

"This joint venture also offers our national fleet accounts some additional options on chassis," adds Hale. Grumman Olson already offers trucks built with GM, Ford, GMC and Navastar chassis.

The Isuzu chassis features the turbocharged 3.9 liter engine with power steering and a fully synchronized transmission.

It will come in two wheelbases, a 132.5 inch model and the more popular 150 inch length. The longer wheelbase is used by bakeries and snack food companies. The shorter wheelbase, which offers a higher weight capacity, is more popular with newspaper companies and industrial cleaning firms.

Isuzu will ship stripped chassis to Grumman Olson production facilities. "We're presently building 1986 models in Tulare, California," says Hale. "We have a minimum number of chassis coming in now. But as the number increases we'll extend production to our other manufacturing sites."

Grumman also has facilities in Mayfield, Pennsylvania; Sherman, Texas; and Sturgis, Michigan.

"Having Grumman production facilities in several locations enables us to minimize shipping costs, and we can pass these savings on to the consumer," says Steve Allen, vice president and general manager of Isuzu Truck of America. "Grumman Olson, which has a reputation for high quality products and outstanding customer service, is an ideal partner for Isuzu." ■

Technical Services Wins Contract To Maintain Planes At Pt. Mugu

Grumman Technical Services has won its first contract to service planes manufactured by other aircraft companies.

Under the $7.5 million Navy contract, its Aircraft Services unit will maintain three McDonnell Douglas F-4 Phantoms, seven Lockheed P-3 Orions, and two A-7 Corsairs, as well as three Grumman A-6 Intruders, for the Pacific Missile Test Center in Pt. Mugu, California. These planes are used to evaluate various weapon systems before they go into the fleet. Grumman began work under the three-year contract on April 8.

"There is a lot of business in the aircraft maintenance field, and we plan to go after our share," says Mike Lenzo, director of Operations and Maintenance. "First we have to develop a good reputation for maintaining non-Grumman aircraft if we are to grow into this business. The Point Mugu contract is our start."

Grumman beat seven other bidders — including the incumbent, Dynalectron Corporation. The number of bidders is an indication that the servicing of the military's aircraft, simulators, and other systems is a young, vigorously growing, and hotly contested market for the private sector, says Lenzo.

"A recent Office of Management and Budget policy dictates that government must put more and more service work into the private sector," says Lenzo. For example, the Navy must look at what it is spending to keep a particular system in operation. Then the Navy compares that cost to what private contractors would charge to do the same work.

"If contractors are 10 percent or more under the government's cost, it's a go for the low bidder," he adds.

Grumman Technical Services plans to be a major beneficiary of this policy change. "This new thrust has helped us in part to win 14 contracts in the past three years," Lenzo states. "We presently have 10 proposals in various stages of work."

For example, the division is bidding on Air Force F-15 and F-4 simulator work throughout the world. It is also assessing three Air Force logistics jobs in Virginia and Maryland, and the maintenance of Navy surface simulators in San Diego and Coast Guard simulators in Mobile, Alabama.

Aircraft Services is also scouring the world in search of trained technicians to work on future contracts. Recently, a team went to a Non-Commissioned Officers Association Job Fair in Germany to recruit new employees.

In spite of the shortage of help, Lenzo states Grumman can't let too many bids pass. "All of these are multi-year contracts...minimum three years, maximum five. If we pass these up now, we'd have to wait." ■

Retiree Obituaries

Vincent J. Alese of 11204 Linden La., Pt. Richey, Florida, died April 2. He retired in 1976.
Theodore Arendt at P.O. Box 204, Blue Point, N.Y., died March 30. He retired in 1976.
Erwin C. Burman of 2018 Farnham No., Deerfield Bch., Florida, died March 9. He retired in 1975.
John C. Hulsen of 204 Lochmond Dr., Fern Park, Florida, died March 28. He retired in 1970.
William Klusmeyer of 2412 Cambridge St., East Meadow, N.Y., died March 28. He retired in 1964.
Francis L'Hommedieu of 311 Singingwood Dr., Holbrook, N.Y., died March 31. He retired in 1973.
George H. Pierce of 129 Leslie Way, Hendersonville, North Carolina, died March 19. He retired in 1970.
Franklin G. Powers of 249 McConnell Ave., Bayport, N.Y., died March 27. He retired in 1961.
Norman E. Ray of 461 NE 62nd Ter., Ocala, Florida, died March 21. He retired in 1979.
Ludwig N. Stuber of 7 Farragut Rd., Merrick, N.Y., died March 23. He retired in 1979.
Thomas J. Sullivan of 138 Lido Blvd., Lido Beach, N.Y., died March 13. He retired in 1971.

Personals

My family and I wish to thank all of my friends, co-workers and ESO for their kind expressions of sympathy during the recent loss of my mother. **Tony Stallone**

My family and I wish to express our sincere thanks and appreciation to all our friends, co-workers and ESO for their kind expressions of sympathy during the recent loss of my mother. **Manny Encizo**

I would like to extend my sincere thanks to my co-workers and ESO for the kindness that was shown to me during the recent loss of my mother. **Joe Sikora**

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Let Us Know

We'd like to know what you think about the things you see in these pages, and what you see going on in the company. Serious comments, questions and complaints are welcomed, and will be answered by the people most qualified to respond. We'll get back to you promptly with their replies. If the topic is of general interest, we'll print it.

Letters to the editor should be addressed to *Grumman World*, 1111 Stewart Avenue, A22-GHQ, Bethpage, N.Y. 11714, and should include your name and address.

Know A Good Engineer?

Company offers bonus bounty for engineering referrals

Grumman is short of experienced engineers and needs your help.

All divisions are offering a tax-free $1,000 bonus to any Grummanite who refers an engineer who is subsequently hired in a critical skill area and stays with the company for at least six months.

Engineers must have at least five years professional experience and must be hired within one year of the date they are referred. The referral must be made before any interviewing or hiring takes place.

Mail the application and resume to Renee Cox, Employment, mail stop C07-GHQ. Attach a cover memo that includes the name of the person you are referring, as well as your name, building, department, permanent number and telephone extension.

The program is effective immediately; certain restrictions apply. For details, call Cox on Ext. (111) 59385.

Cuomo Tells PAC: New York Benefits From Grumman

BETHPAGE, NY, APRIL 16, 1986 – "Grumman has been important to this state for a long, long time. As you benefit, the whole state benefits," said New York Governor Mario Cuomo, in a high-spirited keynote speech at the annual Grumman Political Action Committee meeting.

Over 500 Grummanites packed the Building 4 hangar to hear the governor.

In his welcoming address, Grumman Chairman Jack Bierwirth recalled the critical role Cuomo played in helping Grumman deal with the skyrocketing cost of electric power on Long Island. "A few years ago, we found some available nuclear energy upstate that could be delivered to Long Island for industrial purposes at a reasonable price," Bierwirth said. "The governor went out on a limb, and said 'This has got to happen, because this is good for New York.'

"And that unleashed the greatest expansion that Grumman has ever had," Bierwirth continued. "It coincided with a takeoff of Grumman that is unparalled." Since that time, Grumman has expanded a million square feet and added several thousand new jobs.

During his speech, Cuomo emphasized Grumman's continuing influence on the entire state.

"Long Island is tied together with Buffalo, like it or not," he said, explaining that the Island's strong economy helps offset problems elsewhere in the state – particularly in western New York where the disappearance of steel and auto industry jobs have ravaged that area's economy. "Because of what Grumman brings to the Island and to the whole state in taxes and revenues, we're able to do some things in western New York."

He praised the performance of Grumman aircraft in the Mediterranean and congratulated the company on its contract with the U.S. Postal Service for the Long Life Vehicle. Even though the truck will be built in Pennsylvania, Cuomo said, "We all rejoice in your good fortune."

The New York governor talked about what his administration is trying to do to help business, specifically on Long Island. The state has enacted a $3 billion tax cut – its biggest in history – while cutting its deficit at the same time. A bond issue passed in 1983 is helping rebuild the state's infrastructures.

On the topic of energy – one of the biggest costs of doing business in southern New York, he was emphatic. "We must control our own energy future. Any business, large or small, must be able to operate predictably," he said. Cuomo has established a panel to evaluate the public power for the Island; Bierwirth is a panel member.

Construction of the Marcy South transmission line to bring cheaper upstate energy into southeastern New York has begun. Cuomo is also committed to the construction of a cable under Long Island Sound to bring the benefit of cheap upstate power to Long Islanders.

During the question and answer session, one Grummanite asked about the Shoreham (L.I.) nuclear powerplant. Cuomo replied that, in general, New York isn't opposed to nuclear power. "However," he said, "the nation has shown that it can't handle the technology."

The specific problem with Shoreham is the question of safety, said Cuomo. The Nuclear Regulatory Commission requires a workable evacuation plan. According to the governor, evacuating the area around Shoreham would be impossible. "You can't even get to the beach!" he stated, much less get everyone within 10 miles of Shoreham away from the area in an emergency.

Cuomo blasted the Gramm-Rudman Act, which he called "a gun that we're putting to our own temple." The governor believes the law doesn't allow government to reason its way out of the nation's fiscal problems, particularly the huge national deficit.

According to Cuomo, the biggest fiscal danger to New York State is the attempt to eliminate the state and local tax deductions from federal income tax. The proposal was defeated in the House of Representatives. A similar proposal is now before the Senate, where Senators Moynihan and D'Amato are fighting it.

"If we don't win this fight, it's going to set us back a decade or more. You're in this political action group because you understand how important it is to watch the issues," Cuomo told PAC members. "Watch this issue."

During the business portion of the meeting, PAC members elected Grumman International Secretary Vincent Milano vice chairman of the PAC steering committee. Grumman Credit Corporation assistant treasurer Bill Ryan was re-elected assistant treasurer of PAC.

The PAC membership also voted a resolution thanking John Bohlander and John Carr, both of whom recently retired from Grumman. They were praised for their "valued services as officers and members of the steering committee." ■

Speaking Out. *N.Y. Governor Mario Cuomo called the Gramm-Rudman Act 'a gun that we're putting to our own temple.' The governor believes the law doesn't allow government to reason its way out of the nation's fiscal problems.*

Fighting Skyrocketing Energy Costs. *Grumman Chairman Jack Bierwirth said Gov. Mario Cuomo played a critical role in helping the company tackle high energy costs. (Photos by Bob Settles and Rich Breunig)*

A Packed House. *On April 16, over 500 Grummanites gathered to hear N.Y. Governor Mario Cuomo at the annual Political Action Committee meeting in Bethpage. After his speech, the governor fielded questions from the floor.*

Investment Plan Posted Healthy Gains In '85

Overall, 1985 was a good year for Grumman Employee Investment Plan (EIP) investors.

Details of the plan's 1985 performance were reported at the annual EIP meeting, held April 3 in Grumman Headquarters, Bethpage.

All four investment vehicles in the EIP – the Equity Fund, Fixed Income Fund, Guaranteed Income Fund, and Company Stock Fund – posted healthy gains during 1985.

However, EIP members who are active employees have already seen a drop in the company match to the plan. The match, which "floats" according to company profits, held at 100 percent through 1985 but dropped to 82 percent for the first quarter of this year, and 75 percent for the second.

The reason: lower company profits due to increased investment in facilities and research and development.

"Pure and simple, it's a reflection of earnings performance during 1985," said Bob Bradshaw, Grumman Corporation vice president and secretary, and a member of the EIP Committee. "Because this is a rolling, four-quarter average, I can't give you much encouragement in terms of what that match is likely to be for the remainder of '86."

The most spectacular gain among the four investment vehicles was posted by the Equity Fund, which offered a 25 percent return. That compares to a sluggish .8 percent gain in 1984.

However, another Equity Fund manager is being selected to replace Fiduciary Trust Company. This firm will continue to manage the Fixed Income Fund. The new Equity Fund manager will be chosen within three months.

Bradshaw pointed out that despite the good show by the Equity Fund in 1985, it was outperformed by the Standard and Poors 500, Dow-Jones Industrial averages, and the SEI Median for equity funds (SEI is an advisory firm that produces a comparative listing of equity and fixed-income funds). And it trailed them even further in recent years.

"If you had a chance on January 1, 1985, to put your dollar into any one of these four investment vehicles, you would have been well advised to put it the Equity Fund," said Bradshaw, "because it outperformed the other three. Nevertheless, it should have outperformed the other three by an even wider margin. And that is what has led us to make the change.

"In fairness, I must add that Fiduciary, which has had the account for about 11 years, performed quite well for the first five or six of those years. It's only been in the past five-year period when these problems began to surface."

The Fixed Income Fund offered a 22 percent return to investors in 1985, compared to a 15.2 percent return in 1984. For four out of the last five years, it has outperformed the SEI median. In 1985, the SEI median was 20.5 percent.

What's ahead for those two plans? Fiduciary Chairman Larry Huntington sees low inflation and very stable prices continuing for the near future, which will bode well for Equity and Fixed Income investors in 1986 and 1987.

"Double-digit inflation makes tangibles – real estate, for example – a very good place to be," says Huntington. "Conversely when you have periods of lower inflation and stable prices, history teaches us that financial assets – stocks and bonds – are the beneficiaries of that period."

Other positive factors: the improvement in the U.S. trade balance, lower interest rates, and steady growth in the U.S. economy. The negatives: the huge debts racked up by U.S. and foreign governments, as well as consumer debt; the recently passed Gramm-Rudman deficit-reduction bill which will dampen the economy in the short-term; and uncertainty about the dollar abroad.

The Guaranteed Income Fund – a sure-thing investment for EIP members and the most popular investment vehicle – was outpaced by the other three: it returned an 11.3 percent rate of interest. The 1986 rate is slightly reduced at 11.2 percent.

However, its rate of return is still significantly higher than the rates for typical money market funds or three-month treasury bills. Both of those hovered between 7 and 8 percent for much of 1985.

Company stock rose in value to $31.38 at the end of 1985, up from the year-end 1984 figure of $26.50.

Susan Reiter, a vice president of Bankers Trust, the Grumman EIP's recordkeeper, outlined a variety of proposed changes to Federal tax law, which would have an impact on the Grumman EIP.

"Unfortunately, at this time, no one knows what the tax laws will look like when changes occur," said Reiter. "The good news is that they won't eliminate 401ks. We'll all be able to continue to save on a pretax basis. The provisions would make it more difficult to take our money out of such plans."

One proposal would require investors with both a 401k fund – which is non-taxable – and a regular EIP account to withdraw their 401k funds before the latter could be touched. That way, sheltered money would be available for Federal taxation.

A 15 percent Federal excise tax has also been proposed for money taken out of a 401k before the investor reaches the age of 59 ½. In individual retirement accounts (IRAs), there already is a 10 percent excise tax.

A third proposal would change to five years the income averaging allowed for lump-sum distributions. Now, at age 59 ½ or older, the EIP investor can withdraw 401k money in a lump sum and be taxed on a 10 year average basis.

The EIP office is preparing a booklet encapsulating the 1985 results. It will include many of the graphs and charts presented at the meeting. If you'd like a copy, contact the office at Ext. (111) 57250 or 55363. ■

Charting The Course. *Bob Bradshaw, vice president and secretary, reports on the 1985 performance of the Grumman Employee Investment Plan at the April 3 EIP annual meeting. (Photo by Bob Sagliocca)*

Investors Query The Experts

Since mortgage rates have been falling, it makes good sense for people who bought houses earlier in the '80s to refinance at those lower rates. I noticed that both managers of Guaranteed Income Fund assets — Aetna and Mutual Benefit Life — have invested heavily in mortgages. Will the rash of refinancing affect their rate of return on mortgage investments?

Not significantly. Most of their mortgage business is *commercial* — which doesn't fluctuate as much as as homeowner mortgage rates.

Why did it take 10 years to decide to change the manager of the Equity Fund?

Fiduciary's record has only recently lagged behind the other market indicators. A company has to give its fund manager a chance to prove performance through a variety of market conditions. Thus, it would have been imprudent to make this decision before now.

The amount that you can put into the EIP is limited to 14 percent of your base salary. I've learned other companies allow as much as 25 percent to be put into the plan. Why does Grumman set the limit at 14 percent?

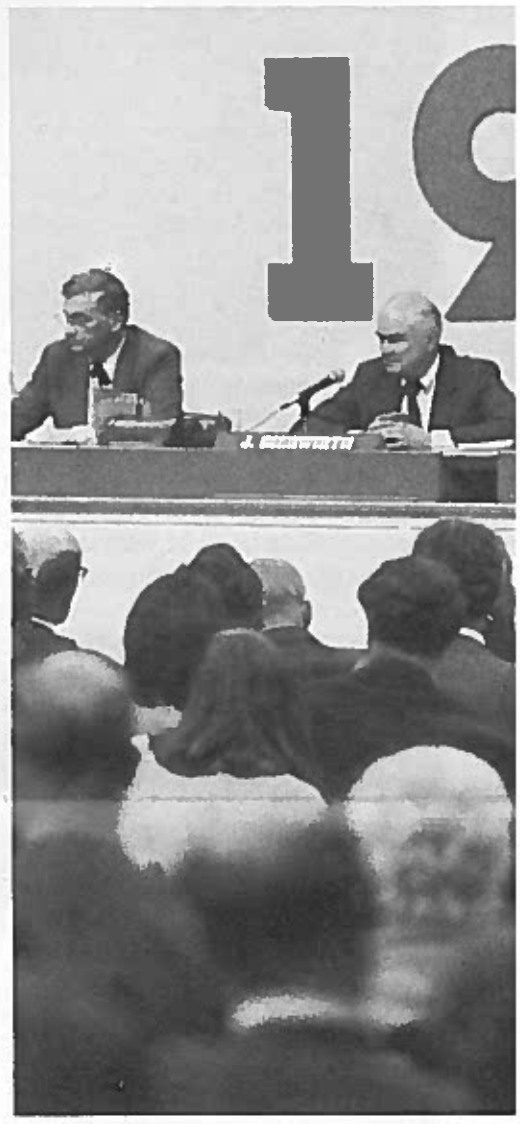
Employee savings plans are a fringe benefit. IRS regulations limit, to 25 percent of total compensation, the amount companies can allow as fringe-benefit expenditures. You must consider your total benefits package — which extends beyond the savings plan. Without getting into a great deal of complicated detail, this limitation when applied to our benefits program prevents us from exceeding the 14 percent level.

Recently, there was a big delay in withdrawing funds from the EIP. What caused it, and what can be done to prevent it?

The company has divisions and subsidiaries located all over the country, and several of them elected to offer the EIP to their work forces for the first time. Due to the complexity of the plan, some of the newcomers fell behind in submitting their monthly data.

As currently set up, data must be recorded for the entire plan, from every site, before transactions can be made. That includes withdrawals. We believe this was a non-recurring problem that has now been overcome. In addition, Bankers Trust is now working on a computer program to enable partial processing, which should eliminate this problem altogether. Generally, you can expect a three to four week turnaround on withdrawal requests.

Over 1,000 shareholders braved the elements and attended the annual meeting on April 17. At the outdoor display of Grumman products, some took shelter under the wing of an E-2C. Others decided to keep dry inside the Building 4 hangar and catch up on their reading.



1985: Pivotal Year For Grumman

(Continued from page 1)

year. "This work will keep those production lines going well into the 1990's," he said. "Our other tactical aircraft — the E-2C and EA-6B — are also being continually upgraded. Overall, our core aircraft systems business looks solid."

Grumman now has a backlog of $7 billion — up from $5 billion just one year ago.

Skurla added that the X-29 advanced technology demonstrator is outperforming its designers' expectations. The U.S. Air Force is now planning a flight test program for the second X-29 aircraft, to investigate high-angle-of-attack flight characteristics.

Foreign sales of the E-2C Hawkeye continue to look promising, while Grumman is pursuing high-tech, non-aircraft business overseas — "including several very interesting joint venture possibilities," he said.

In the next 12 to 15 months, Grumman will bid for a variety of new contracts, including: the Boost Surveillance Tracking System, a military space project that incorporates Grumman's work in the field of mosaic infrared sensors for the Strategic Defense Initiative; the Air Force's Advanced Tactical Fighter, which would replace the F-15 and F-16 late in the 1990's; the Navy's Advanced Tactical Aircraft, which would replace the A-6 in the mid-1990s; and the Space Station, a large portion for which Grumman is teamed with Rockwell. Skurla said a request for proposal on the Space Station will be issued by the end of the year.

"These new prospects, when added to our core aircraft business and our new contracts, make for a very full plate indeed," he said. "Never in the history of the company have we had so many new development programs going on at the same time."

Skurla said Grumman is in the midst of a transition period that will put its financial, technical and human resources to the test. "I am confident that we have the aggressive leadership, the new organizational alignment, the talented work force, and the ongoing business momentum to take us successfully into the '90s," he said. "Today, our company is humming like never before. A new Grumman is coming alive with a lot of that old Grumman spirit."

A highlight of the meeting was a short videotape on the Postal Service's next generation delivery truck, the Long Life Vehicle. Grumman recently won a $1.1 billion contract to build LLVs. The order is the company's largest single contract ever.

In the general business portion of the meeting, the following directors were reelected to three-year terms on the board: Archie Albright, president and CEO, Foreign Policy Association; Lucy Wilson Benson, consultant to business and government; Bob Freese, senior vice president and treasurer, Grumman Corp.; John O'Brien, president, Grumman Data Systems Division; and Skurla.

Renso Caporali, president, Grumman Aircraft Systems Division, and Dan Huebner, senior vice president, Corporate Marketing and Development, were elected to one- and two-year terms, respectively.

Shareholders approved amendments for the addition of one million shares of common stock each to the restricted stock award plan and to the stock option plan, programs providing long-term incentive compensation for executives and other key employees.

Finally, shareholders approved the continued employment of Arthur Andersen & Co. as Grumman's independent accountants. ■

State Of The Company. *After opening rema George Skurla (L) brought the shareholders tured: Grumman International President Mik Finance and Treasurer Bob Freese (2nd R).*

What A Year. *Grumman Allied President Ro were happy to answer questions about Grum the U.S. Postal Service to build 99,150 vehicl Bob Sagliocca)*

by Chairman Jack Bierwirth, President -date on the state of the company. Also pic- lehach (far R) and Senior Vice President-

terson (L) and new LLV President Kip Towl s recent win — a $1.2 billion contract from Photos by Rich Breunig, Bob Settles, and

As Grumman chairman of the board from '66-76, Clint Towl presided over many annual meetings (photo taken in 1974). At this year's meeting, Grumman dedicated its corporate headquarters building to Towl.

Headquarters Dedicated To Towl

The man for whom the new headquarters building has been named began his Grumman career in December 1929. In that year, Towl and two contractors went to Baldwin, Long Island to ready Grumman's first plant — a former garage that was in shambles. Two weeks later, he was joined there by the other five company founders.

Once Grumman's initial business ventures got under way — building floats for Navy aircraft and repairing amphibian planes — Towl assisted Treasurer Ed Poor on financial matters. He was also Grumman's first paymaster.

Towl eventually became the company's chief businessman — overseeing all areas except manufacturing and engineering. He was elected president in 1960 and chairman in 1966.

In the early 1960s, Towl took part in a gamble. Grumman sought to build the Lunar Module (LM) that would ferry men to the moon, but one of NASA's contract requirements was a building devoted exclusively to LM engineering.

Towl gambled that the cost of such a facility would be money well spent. Building the LM would build Grumman's reputation in the space business. That facility is Bethpage's Building 25.

Towl retired in early 1976 after nine years as chairman of the board. He impressed his coworkers as a gentlemanly manager who demanded a high level of performance.

"Of all the people I worked with at Grumman, I have a great deal of admiration for Clint," said Wally Spielman, who retired as chairman of Grumman Allied in 1975. "He had great business sense. He was very much concerned about the bottom line — which was necessary to ensure that Grumman could continue to make excellent products."

"He was very much at home in the office," noted George Titterton, who retired in 1968 as senior vice president of Grumman. "To me, it was quite startling when, in the mid-30s, he became a private pilot and bought a plane. He flew it from Farmingdale to Sea Island, Georgia, where he had a vacation house.

"Clint wasn't the fly-boy type, if you will," Titterton continued. "I said to him, 'That's a long way. What do you know about navigation?' He told me, 'Going south, I kept the ocean on my left. Coming back, I kept it on my right'."

In dedicating the headquarters building to Towl, Grumman Chairman Jack Bierwirth also told an anecdote.

"When Grumman was founded, it moved into an old garage," said Bierwirth. "The front of the garage had a large glass window. Roy Grumman, Bill Schwendler, and Jake Swirbul sat in the so-called office, right in front of the window. Kids in the neighborhood would come by and they enjoyed making faces through the window at these strange characters on the other side of the glass fooling around with drawings.

"Clint Towl was asked what the heck to do about this. His solution was to mix up a heavy paste of Bon Ami and paint it on the window so the kids couldn't see through. It was a great relief for Roy, Jake and Bill."

Bierwirth introduced Towl's family to the attendees and unveiled the plaque that will be placed at the entrance to headquarters. It reads in part: "As chairman and chief executive officer from 1966 to 1976, he guided the company through a crucial period of transition that required a leader with intellectual strength and courage. He earned the admiration and respect of people throughout the aerospace community and the gratitude of all Grumman people."

Towl said he was pleased at being honored in this fashion. He cautioned Grummanites to pay close attention to maintaining the company's sterling reputation.

"The phrase 'Grumman Ironworks' was not concocted by some P.R. guy. It was said in all sincerity by a pilot," he said. "All I'm asking you to do is keep that reputation. Do the job just a little bit better than it has to be."

Tribute To Clint. *Grumman Chairman Jack Bierwirth (R) unveils plaque dedicating Grumman Headquarters to company founder Clint Towl (C). Looking on are (L-R) Towl's son-in-law, Tony Corcoran; Towl's wife, Mimi; and daughter, Sandy Corcoran.*

High-Tech Design Tools = A Better Intruder

"Computers were still very young in the Fifties," says John Wallace. "Back then, we mainly used them for performing mathematical calculations. Even most of that, however, was done on old-fashioned mechanical calculators."

In the late Fifties, Wallace was a young stress engineer on the design team of the Grumman A-6 Intruder. He's now engineering manager for the next-generation A-6F, which is on the drawing boards.

Well, not really. The drawing board – the very symbol of the engineering profession – has been all but replaced by computer-aided design and manufacturing (CAD/CAM) terminals. And in Wallace's view, that's a change for the better.

"The computer allows you to do so much more in the design stage," says Wallace. "You can try out more design possibilities, and vary the results for hypothetical conditions. So, the computer lets you reach a greater sureness about your design decisions."

The electronics revolution is having a drastic impact on aircraft design – from the use of these high-tech easels to the sophistication of what flies aboard these planes. Electronic advances enable designers to pack many times more "punch" into the same interior space than they did in previous decades.

The A-6F will boast a new Norden radar system – more reliable, powerful, and jam resistant than its predecessor. It will have more powerful new General Electric engines and two additional weapons-store stations. It will also be equipped with the latest avionics – a total of 125 electronic black boxes. Over 50 are identical to equipment on either the F-14D or F/A-18, and 29 units are common to all three aircraft.

"These days, the Navy wants to achieve the maximum amount of commonality among its planes," notes Joe LeStrange, technical assistant to A-6 Program Vice President Dan Collins. "But you don't just design commonality for its own sake. For example, there's no way you can take an F/A-18 display, due to size and shape, and put it into an F-14 or an A-6. The designer has to ask, 'does this make sense to do?'

"When achieving commonality doesn't end up costing you, thwarting your design goals, fine," says LeStrange. "For example, the common mission computers – that's a great idea." Both the A-6F and F-14D will carry dual Navy-standard AYK-14 computers supplied as government-furnished equipment. They will increase the speed and accuracy of communications among the aircraft's black boxes and improve overall weapon system performance.

Though the shape of the plane will be basically the same, the A-6F will require many structural modications to accommodate all the new equipment. For instance, structures will be added forward of the first bulkhead to better house and maintain system boxes. And the engine-door area must be modified to make the new engine easier to install.

In addition, the layout of the cockpit's interior will be totally different – with all new displays, new armament controls, and a heads-up display through which the pilot can look at instrument data and out the windscreen simultaneously.

Back further on the aircraft, the partly composite wings will be manufactured by Boeing. The tail section of the fuselage will be that of the current EA-6B Prowler, which will allow higher maneuvering loads in combat.

LeStrange notes that since the A-6F avionic systems are the latest technologically, the design task isn't as problematic as replacing just one or two components in an existing version. Fitting everything together functionally, mechanically, and electrically is easier, thanks to standard digital data buses and miniaturized electronic components. *Data buses* are the conductors in a computer along which information is transmitted from any of several sources to any of several destinations.

'You don't just design commonality for its own sake.'

Ultrasophisticated equipment will be used to prove out the design of the A-6F. The original A-6 development tests were done in a old wooden building at Calverton, dubbed the "bowling alley." It was torn down a long time ago. The A-6F development test team will work in modern quarters: the first part of a new A-6 complex that opens soon in Calverton. The complex includes a two-story office building, and a multilevel laboratory next door.

Next month, the first group of A-6F systems, software and avionics people will move there from Melville. At any given time in the design cycle, about one-third of the development people will be working there.

"We've gone from using mostly oscilloscopes

Plotting It Out. *Hans Flader, remote job entry system operator in Melville, holds a top-side view of the A-6 produced on a plotter. The machines are wired to the CAD/CAM system for hard copies.*

Behind The Scenes. *Dave Zabrawski, Bob McCarthy, and Joe Norton ready one of the A-6F lab's two computer facilities. Development testing has become highly complex, so extensive computing is necessary to support the lab's work.*

Technical Wizardry. *Left, Sharon Tuohy (foreground), a CAD/CAM technical coordinator for the A-6 Program, creates an A-6F system schematic. Assisting her are technical coordinators Brenda Corris and Celia Murphy. Below, Henry Reska examines data at the A-6E Systems Integration Test Station in Calverton. A new, separate station is on tap for testing the next-generation Intruder in its new laboratory. (Photos by Gerry Costello and Bob Settles.)*

for testing the A-6A, to some digital equipment for the A-6E, to requiring some medium-size commercial mainframes for the A-6F," notes Walter Smrek, A-6 deputy engineering manager. "The VAX-8600, one of the mainframes that will be in the new A-6F lab in Calverton, is the same kind of computer that Data Systems is using to process commercial data in Holtsville.

"We feel that in the development-testing stage, it's necessary to have rapid turnaround on fixing problems," continues Smrek. "And that's accomplished best by having the engineers at Calverton – close to both the lab and the flight test site."

Wallace recalls that in his earlier days at Grumman, the A-6 forward section was moved from Plant 5 – where the engineers worked – to Plant 2. "I remember thinking, 'I've gotta walk all the way over there'," he says.

'You've heard of a chicken in every pot? Somewhere along the line we'll hit the goal of a terminal on every desk.'

Though you might think development people will have to vie for a seat in front of the laboratory test scopes, the lab's architects have worked judiciously to minimize the amount of time people will be spending in the lab itself.

"The desks in the office building will have computer workstations connected to the lab," says Joe Norton, building coordinator for the A-6F complex. "That way, people will work in the lab for testing and debugging, and go back to their desks to call up the data for analysis."

"You've heard of a chicken in every pot? Somewhere along the line we'll hit the goal of a terminal on every desk," says Norton. "And that includes both engineering and management."

Though much of the equipment is still in a mountain of crates and boxes, when it's complete, the lab will have two mission computer test stations, and test stations for the aircraft's stores management system, displays, detecting and ranging system, radar, flight controls, and navigation system.

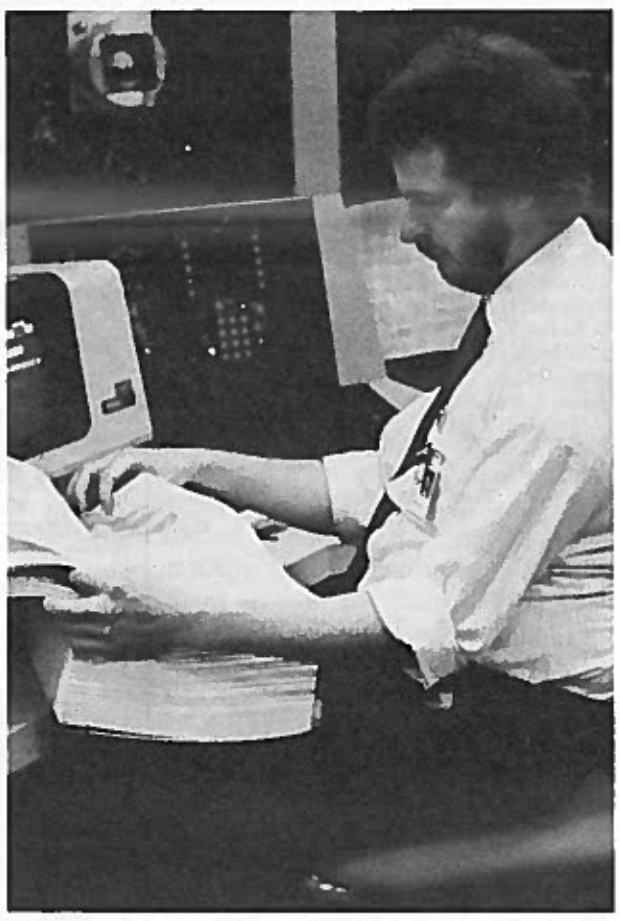
There will also be a systems integration test station consisting of the actual A-6F displays, controls, mission computers, navigation equipment, and stores management systems. It will be hooked up to simulation equipment to test how all the aircraft avionics components work together.

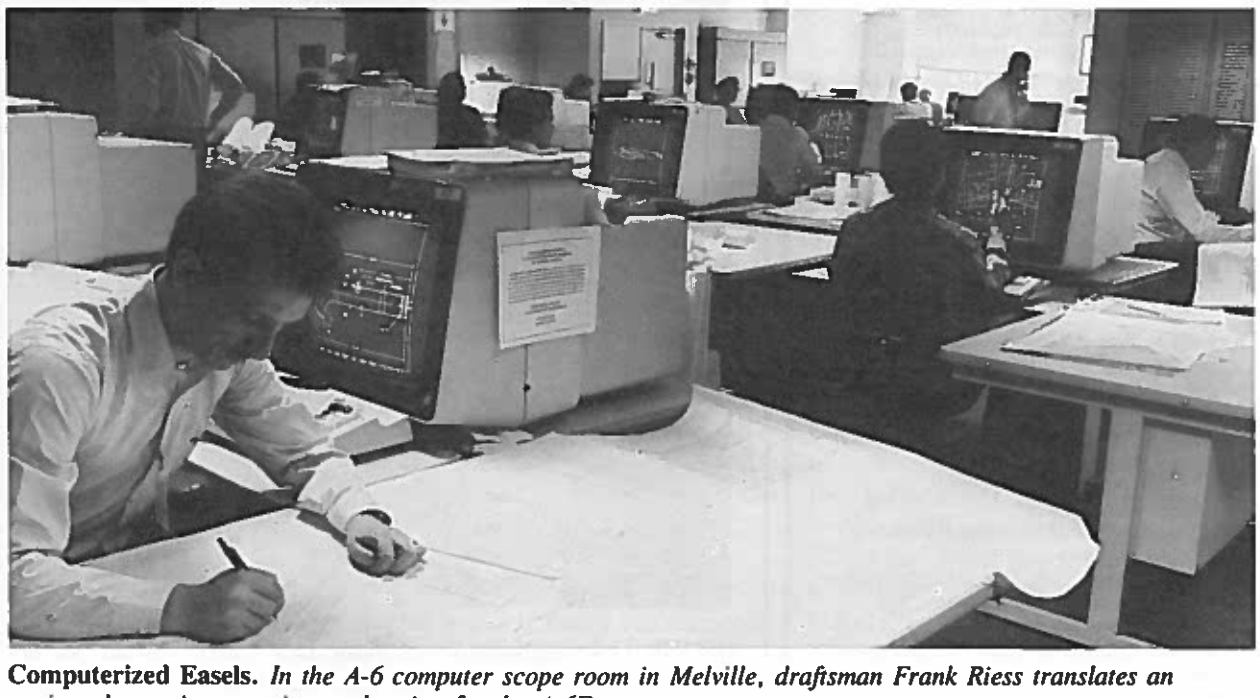
Office space is being set aside for the 50 Navy people who will soon begin working at the A-6 complex – testimony to the way the Navy now does business. In the past, the Navy didn't play such a big role in development testing. The Navy now feels that by working side-by-side with the Grumman engineers at this test stage, problems will be resolved earlier.

All of these advances in design and testing will pay off when pilot production of the first A-6F aircraft begins next year. (It's called "pilot production" because a limited quantity will be manufactured with the understanding that additional changes might be required.) For instance, the impact of CAD/CAM will be felt on the production line.

"There's more manufacturing consistency with CAD/CAM," says Wallace. "Parts big and small simply fit together better. It all adds up to a better product."

"It never ceases to amaze me that a bunch of guys put together a design in 1958 that satisfied Navy requirements then, and that with primarily electronic systems improvements, continues to best fulfill today's needs," says Smrek, who has been with the program himself since 1964. "It says the guys did a damn good job – and they're still doing it." ■





Computerized Easels. *In the A-6 computer scope room in Melville, drafisman Frank Riess translates an engineer's requirements into a drawing for the A-6F.*

Service Milestones

45

Emil E. Benes, Controls, Bethpage, Aircraft
John E. Crawford, Tool Cont., Bethpage, Aircraft
Robert G. Miller, Gen. Comm., Bethpage, Services

40

Ernest J. Anzalone, Flt. Ops., Bethpage, Aircraft
John H. Culleton, Des. Supt. Mgmt., Bethpage, Aircraft
Alexander J. McRae, Veh. Struct. Analysis, Bethpage, Aircraft
Lois H. Starrett, ILS Supply Ops. Mgmt., Bethpage, Aircraft
Paul W. Tracy, Struct. Des., Melville, Aircraft

35

Richard E. Addiss, Product Plann., Bethpage, Aircraft
Catherine F. Baird, Marketing, Bethpage, Aircraft
Walter E. Becher Jr., Assembly Methods & Plann., Calverton, Aircraft
Charles Burke, Metallurgical Eng., Melville, Aircraft
Paul D. Burke, Qual. Ops. Plann., Bethpage, Aircraft
Jack C. Combs, Veh. Drafting, Bethpage, Aircraft
John Cusanelli Jr., Machine Shop, Bethpage, Aircraft
Richard A. Duester, Mach. Insp., Bethpage, Aircraft
Richard G. Erdody, ILS Supply Ops. Mgmt., Bethpage, Aircraft
Clarence T. Lohse, Admin. Melville, Electronics
Robert Lomot, Prod. Plt. Mgmt., Bethpage, Aircraft
William T. Merrell, Product Plann., Bethpage, Aircraft
Edward L. North, Proposal Mgmt., Bethpage, Services
Vito Palazzolo, Mat'l. Cont. Plt. Rep., Bethpage, Aircraft
Egidio R. Perugi, Cont. & Mechanisms, Bethpage, Aircraft
Herbert S. Phillips, Proc. Svcs., Bethpage, Services
James K. Regan, Sub Assembly-Bench Fab., Bethpage, Aircraft
Robert Skolnick, Sub. Assembly, Bethpage, Aircraft
Matthew D. Taibi, Struct. Subs., Calverton, Aircraft

30

Howard Anderson, Assembly Methods & Plan., Calverton, Aircraft
Earl Baker, Electronics, Bethpage, Aircraft
Gottfried G. Eggart, Machine Shop, Calverton, Aircraft
Donald K. Getrost, Insp. Elect., Great River, Electronics
George Gluick, Food Serv. Acct., Bethpage, Aircraft
Stephen O. Haizlip, Final Assembly, Calverton, Aircraft
Efrain Jimenez, Cont. & Mechanisms, Bethpage, Aircraft
Robert E. Kiebitz, Mrkt. Plan./Ops. Analysis, Bethpage, Services
Richard L. Podlaski, Flt. Ops., Calverton, Aircraft
Henry D. Schettini, ILS Sub. Sys. Eng., Melville, Aircraft
William E. Stanton III, Contracts, Woodbury, Data
John D. Young, Prod. Mgmt., Calverton, Aircraft

25

Richard A. Benedict, Flt. Avionics, Calverton, Aircraft
Alfred T. Bergen Jr., Insp. Elect., Great River, Electronics
Arthur T. Berry Jr., Mach. Parts Insp., Bethpage, Aircraft
Barry F. Borbet, GSE Sch., Great River, Electronics
Roy V. Butler, Assembly Tooling & Handling, Calverton, Aircraft
Garrett T. Byrnes, Qual. Eng., Melville, Aircraft
Edmund G. Charland Jr., Corp. Inst. Sys., Calverton, Aircraft
Alfred M. Christenson, Maint., Bethpage, Services
Charles W. Doyle, Corp. Plan. Cont. & Budg., Huntington Bch., Aircraft

R. A. Benedict

A. T. Bergen Jr.

A. T. Berry Jr.

B. F. Borbet

R. V. Butler

E. G. Charland Jr.

A. M. Christenson

C. W. Doyle

E. M. Eriksen

C. L. Giannelli

E. Harris

P. J. Lindstrom

E. A. Lynch

W. H. McCluskey

J. W. McDonald

R. B. Mroz

M. L. Napoleon

P. M. Petruzzelli

R. G. Rennie

R. C. Small

H. A. St. Denis Jr.

V. G. Vanecek

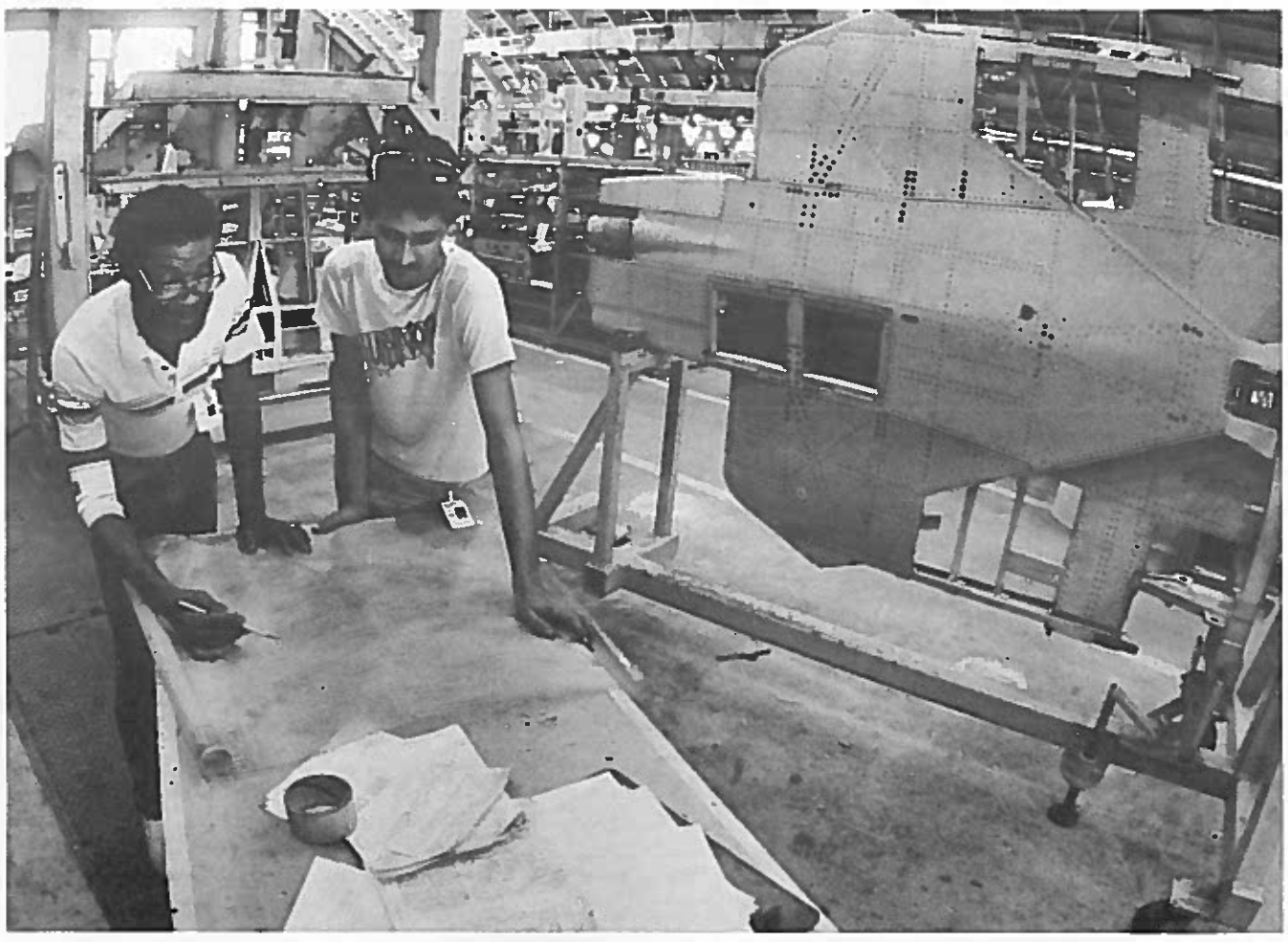
F. A. Wengler

O. S. Williams Jr.

Erik M. Eriksen, Electronics, Bethpage, Aircraft
Martin R. Frith Jr., Assembly Tooling & Handling, Calverton, Aircraft
Dale R. Gage, Grumman Boats, Marathon, Allied
Carl L. Giannelli, ILS Sys. Eng. Mgmt., Melville, Aircraft
Eduard Harris, Adv. Aircraft, Bethpage, Aircraft
Patrick J. Lindstrom, Mech. Detail & Finish, Great River, Electronics
Charles P. Kelly Jr., Fl. Science Mgmt., Bethpage, Aircraft
Eugene A. Lynch, Gen. Subcont., Bethpage, Services

William H. McCluskey, Engines, Calverton, Aircraft
John W. McDonald, Prog. Mgmt., Melville, Electronics
Richard B. Mroz, Supt. Sys., San Diego, Aircraft
Michael L. Napoleon, Elect. Test, Bethpage, Aircraft
Pellegrino M. Petruzzelli, Instr. Plann. & Cont, Bethpage, Aircraft
Denise Pettingill, A/C & Marine Prog., Bethpage, Aircraft
Robert G. Rennie, Space Prog. Mgmt., Bethpage, Space

Stanley Sakowski, Struct. Test, Bethpage, Aircraft
Robert C. Small, Corp. Inst. Sys., Calverton, Aircraft
Hector A. St.Denis Jr., Flt. Avionics, Calverton, Aircraft
Vincent G. Vanecek, Comp. Equip., Melville, Aircraft
Frederick A. Wengler, Mfg. Sch., Bethpage, Aircraft
Oswald S. Williams Jr., Vice President, Bethpage, International
Robert T. Wesnofske, Proc. Plan. & Cont., Bethpage, Services



Off The Drawing Board. *At Grumman's Stuart, Florida, facility, Cecil Sturrup and Walter Bell check the blueprint for an F-14A "beaver tail" fuselage assembly.*

Grumman Robotic Ranger: One Mean Dude

With all fours firmly planted on the ground, it isn't much taller than a fire plug. It doesn't move very fast, but Grumman's Robotic Ranger is one of the meanest little soldiers you will ever find lurking in the bush.

Through a number of Army contracts, the Electronics Systems Division has developed a remotely-guided robot that can carry a number of weapons — particularly anti-armor missiles — and attack enemy armor or soldiers. Meanwhile, the infantryman who's operating the robot is safe and undetected several miles away.

The Army and Grumman are negotiating a contract for concept evaluation tests. The tests, which would simulate combat conditions, are to begin next month at Fort Benning, Georgia.

Grumman is hoping that successful field trials of the Robotic Ranger will lead to winning an Army Tele-operational Mobile Anti-armor Project contract. Requests for proposals will be issued in June and will lead to preproduction contracts in early 1988.

"The infantryman has a tough fight in the anti-armor mission," says Jerry Kirsch, Robot Vehicles director for Guided Weapons Systems Products. "We've developed an expendable device that's equipped with missiles and can attack heavy armor.

"More importantly, Grumman has come up with a generic concept. It can deploy any hand-held measurement device or weapon that would be fired by an infantryman," says Kirsch. "Earlier this year, we successfully tested remote-firing of anti-tank rockets and a machine gun."

According to Kirsch, the Army also sees applications for the Ranger in bomb disposal, sentry duty, reconnaissance, mine sweeping, and kamikaze-like destruction of bunkers. It could also scout and measure contaminants in territory that had come under nuclear, biological or chemical attack.

Not bad for a three-foot tall, five-and-a-half-foot long, battery-powered bantam. The vehicle's battery powers small motors in each wheel. The Robotic Ranger has four wheels: one in the back, another in the front, and two on the sides. It quietly creeps along at 10 m.p.h. drawing no attention from the enemy.

Look Out, Tanks. *Grumman's Robotic Ranger will be able to take on armored vehicles without flinching. The remotely-guided robot can carry a number of weapons — particularly anti-armor missiles. (Photos by Harry Prodromides)*

What makes the Robotic Ranger a potent extension of the very valuable infantryman is a two-way communication system with a physical link up to six miles long. "Ranger is controlled through a low-cost, single, fiber-optic link — and it's disposable," says Kirsch. Using the controls at his end, the operator guides the Ranger to a good ambush site. He then watches enemy armor from a safe position, beyond the line of site, using the Ranger's video camera and infrared sensor "eyes."

Fiber optics permits the transmission of video — without radiating signals for the enemy to pick up. It is also relatively immune to jamming and radiation.

The current Robotic Ranger design uses a low-cost microprocessor for navigation and display functions, but it has no computer-based artificial intelligence — yet. Someday, that capability will be available. For now, it's a very inexpensive way to multiply the counterpunch of NATO forces against the greater number of tanks in the Eastern Bloc arsenal. Says Kirsch, "If it just cripples a tank and then is destroyed itself, it has more than done its job."

Many can be towed train-like to staging areas by a single Jeep. The reusable control unit is slightly bigger than an attache case.

There is a large market for military robotics. Kirsch says that most estimates of the market potential start at $1 billion and go up — including both the U.S. and foreign military sales. Electronics Systems plans to show the Ranger to the European military community at the British Army Equipment Exposition this June. ■

The Robotic Ranger's Brain. *Safe, miles away from the enemy tanks, this G.I. can pick targets and sight his Ranger's weapons using its video eyes.*

No Health Hazards For Donors

Though it's been said many times before, the message bears repeating: you can't catch acquired immune deficiency syndrome (AIDS) from giving blood.

Many people cling to this utterly groundless fear despite the facts.

When you donate blood, a health professional opens a sterile, disposable blade and pricks your finger to test your blood. The blade is then thrown away.

If and when you actually donate, another worker locates a vein in your arm, inserts a new, disposable syringe, attaches that to disposable tubing attached to a disposable bag, and your blood is collected. The syringe is thrown away, and later, so are the tubing and the bag.

There is nothing about the procedure that should make you fear contracting *any* illness.

People who raise AIDS as an issue confuse donating blood with *receiving* a transfusion of contaminated blood. Before a test was developed to identify AIDS carriers, several years ago, some Americans did contract AIDS that way. All donations are now tested for AIDS. If the test is positive, the donor is notified and the blood is either destroyed or used only for research.

There is still much that isn't known about AIDS, but one thing is certain: you can't contract it from giving blood.

On Long Island, the Grumman Blood Program usually has a blood drive scheduled each week. To find out where, call the program office at Ext. (111) 58920, (516) 575-8920, or 682-8920.

Most of the larger Grumman buildings off Long Island conduct blood drives, too. Information may be obtained from your first aid office or administrator. ■

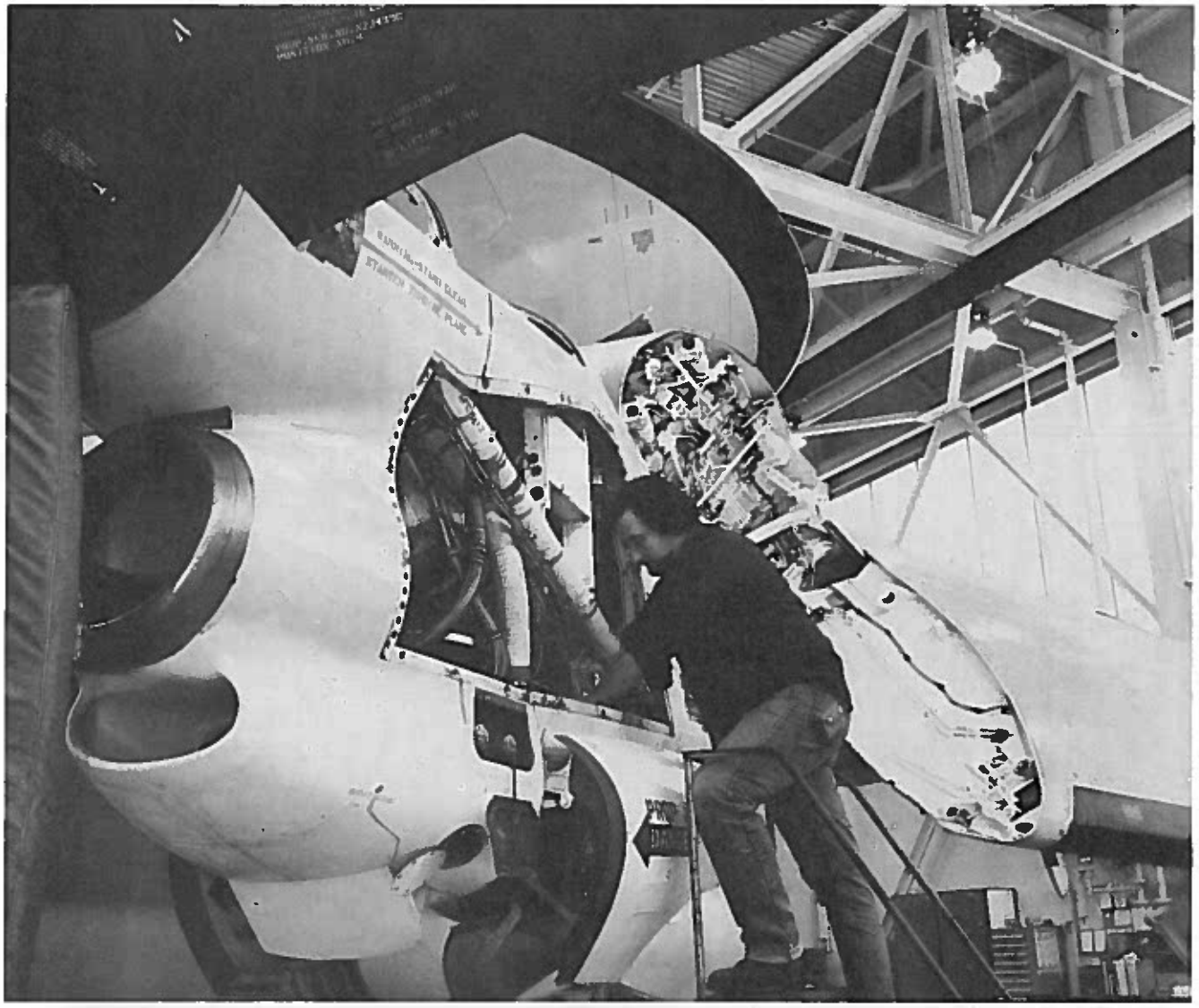
GrummanWorld

April 25, 1986

April Showers, But Sunny Forecast For Grumman

Despite soggy weather, over 1,000 shareholders attended the annual meeting on April 17 and were briefed on the state of the company's business. Grumman reported a backlog of $7 billion in orders — the highest in company history.

This photo was taken through the window of the Grumman Long Life Vehicle; the company will build 99,150 of these trucks for the U.S. Postal Service. Coverage of the annual meeting starts on page 1.



Looking For Trouble. *Fred Rapp performs a routine inspection of an E-2C Hawkeye in Building 4, Bethpage. He's checking out the engine, wiring and tubing for any damaged, loose, or worn parts. (Photo by Jim Wagner)*

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